

Appl. No. 09/934,299
Amdt. dated July 7, 2006
Reply to Office Action of April 10, 2006

PATENT

REMARKS/ARGUMENTS

Amendments

The claims are modified in the amendment. More specifically, claims 5, 39, 63 and 81 have been amended and new claims 94-170 have been added. Therefore, claims 5, 23, 39, 50, 63, 81 and 94-170 are present for examination. No new matter is added by these amendments. Applicant respectfully requests reconsideration of this application as amended.

35 U.S.C. §101 Rejection

The Office Action has rejected claims 5, 39, 63, and 81 under 35 U.S.C. §101 as non-statutory and allegedly lacking in utility and failing to describe a concrete, useful and tangible result. MPEP §2106(II)(A) requires Office personnel to put forth a *prima facie* case that "the claimed invention as a whole is directed to solely an abstract idea or to a manipulation of abstract ideas or does not produce a useful result." Further, this section requires the Office personnel to "expressly state how the language of the claims has been interpreted to support the rejection."

As noted in each preamble, these claims provide methods of "*processing burst information in a transmission link*." These claims are not drawn to abstract ideas. Rather, the claims are drawn to highly useful and tangible results relating to the processing of information, for example finding phase ambiguity. Although phase ambiguity is an intermediate result, its utility in processing burst information is self-evident to those of ordinary skill in the art.

The Application notes that the "demand for telecommunication bandwidth has grown dramatically in recent years," creating a need for "cost-effective, continuous connections in many applications that require high, instantaneous throughput due to the inherent presence of bursty information transmissions." Application, "Background of the Art," p. 1, ll. 14-17. Clearly, processes aimed at the improvement of information processing are extremely useful in today's growing telecommunications economy. For example, phase ambiguity, though an intermediate

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output in the transmission link, is an extremely useful and tangible result for processing burst information. Reconsideration is respectfully requested.

35 U.S.C. §103 Rejection - Huber, Fechtel, Sayeed & GSM TDMA Standard

The Office Action has rejected claims 5, 23, 39, 50 and 63 under 35 U.S.C. §103(a) as being unpatentable over the cited portions of U.S. Patent No. 6,618,452 to Huber et al. (hereinafter "Huber") in view of the cited portions of article *"Efficient FFT and equalizer implementation of OFDM receivers"* by Fechtel et al. (hereinafter "Fechtel") and in further view of the cited portions of U.S. Patent No. 6,456,653 to Sayeed (hereinafter "Sayeed"). The Office Action has also rejected claim 81 under 35 U.S.C. §103(a) as being unpatentable over Huber in view of Fechtel, in further view of Sayeed, and in further view of GSM TDMA Standard. Applicants believe that the claims are allowable as amended. More specifically, the cited references do not teach or suggest using 5 points of correlation to determine symbol phase, as recited in claims 5, 23, 39, 50, 63, and 81. Reconsideration of these rejections is respectfully requested.

Missing Limitation: Determine Symbol Phase Using 5 Points of Correlation

Claims 5, 23, 39, 50, 63, and 81 provide generally for determining *symbol phase* using *"5 points of correlation."* The Office Action characterizes Sayeed as determining sample rate requirements (Col. 3, ll. 12-36). Further, the Office Action asserts that the link between sampling rates and correlation makes the number of correlation points merely a "design choice dictated by system characteristics." Applicants respectfully disagree with this assertion and its application to the missing limitation.

Sayeed does not teach using *"5 points of correlation"* to determine symbol phase. In fact, Sayeed does not specifically teach any method for determining symbol phase. Instead, the cited portion of Sayeed suggests merely that 2x over-sampling be used "in order to properly reproduce the highest frequency sub-carriers and avoid aliasing effects." It is well known that

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sampling rates may be set to at least twice the highest desired frequency in a transmission to ensure that enough samples are acquired to recover that frequency while avoiding aliasing (often referred to as the Nyquist limit). Thus, it appears that Sayeed merely suggests 2x over-sampling to ensure that the highest desired frequency bin in an OFDM system can be recovered. To accentuate how different the teachings of Sayeed are from the claimed invention, Applicants note that Sayeed is using 2x over-sampling for a frequency-domain problem, but the claim is addressing a time-domain problem of symbol phase.

Indeed, the sub-carrier recovery taught in Sayeed has nothing to do, and is completely unrelated to, determination of *symbol phase* as is claimed. The two processes and their respective outputs are separate and distinct. Sayeed does not teach or suggest either 5 *points of correlation* or any other method for determining *symbol phase*. Additionally, none of the other cited references teach or suggest 5 points of correlation in determining symbol phase.

Motivation to Combine

In addition to the missing limitation identified above, Applicants believe the Office Action fails to properly set forth a motivation for the specific combination of prior art references. There is some talk of combinations being "design choice" (section 2, last sentence) or "typical receive configuration" (page 5, line 3) along with conclusory statements about obviousness (page 5, line 2). Applicants believe applying the frequency-domain solution in Fechtel to the time-domain problem of phase ambiguity make no sense. If Fechtel is maintained as part of a rejection, a specific cite to a motivation in the prior art or formal Official Notice is respectfully requested.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

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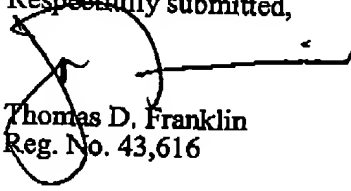
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If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,


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